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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/523,990	03/13/2000	Mou-Shiung Lin	MEG99-005	6138
28112	7590	11/04/2005	EXAMINER	
GEORGE O. SAILE & ASSOCIATES 28 DAVIS AVENUE POUGHKEEPSIE, NY 12603			WALSH, DANIEL I	
			ART UNIT	PAPER NUMBER
			2876	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/523,990	Applicant(s) LIN ET AL.	
	Examiner Daniel I. Walsh	Art Unit 2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 26-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Receipt is acknowledged of the RCE received on 10 August 2005.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamagishi (JP406196575A).

Re claims 38-39, Hamagishi teaches a semiconductor chip with a surface having a laser readable mark/barcode (constitution).

3. Claims 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Aurenus (US 5,129,974).

Re claims 38-39, Aurenus teaches a semiconductor chip having a surface with a laser readable mark/barcode (FIG. 8).

Re claim 40, FIG. 8 teaches that the microlabel identifies the chip, which is interpreted as an identity for the product.

4. Claim 50 is rejected under 35 U.S.C. 102(b) as being anticipated by Hiromasa et al. (JP362169448).

Hiromasa et al. teaches a chip with a surface with a mark comprising a number, barcode or identity of the product/manufacturer, and a protecting structure over the mark where the mark is viewable through the structure (FIG. 4).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 26-41 and 43-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiromasa et al., as discussed above.

Re claim 26, Hiromasa et al. teaches a method of marking an electronic integrated circuit chip having surfaces comprising forming visible internal marking indicia on a marking location upon an exterior surface (second surface under the encapsulating structure) of the chip for identification of the chip, and forming an optically transmissive encapsulating material over at

least the marking location on the one exterior surface of the chip (FIG. 4). The Examiner notes that the semiconductor chip has two surfaces. Though silent to the first surface having multiple pads, connecting the bumps to pads, and that the chip is connected to a substrate in a flip chip fashion, the Examiner notes that flip chip attachment of chips to a substrate (circuit board) are well known and conventional. Typical flip chip connections employ bonds that adheres the multiple bumps and bond pads together, where the pads are on a first surface (bottom) opposite to the second surface. One would have been motivated to do this in order to eliminate the use of bond wires resulting in increased reliability of the bond between the chip and substrate (which forms an electronic component). Re claim 30, Hiromasa et al. teaches a number (FIG. 4). Re claim 31, Hiromasa et al. teaches the symbol can include letters and number and symbols, but it is silent to a barcode. The Examiner notes that a barcode is an obvious expedient. One would have been motivated to use a barcode to permit accurate and machine readable information, as is conventional in the art. Barcodes are well known to be laser readable, for ease of reading/convenience of the user, and barcodes are also known to be readable under transparent protective layers, as discussed in the previous Office Action. Re claims 32, 33, 35, and 36, Hiromasa et al. is silent to the mark comprising an identity for the product or manufacturer. However, the Examiner notes that it is well known and conventional in the art to identify products and manufactures by indicia, such as numbers, letters, etc. One would have been motivated to do this to provide useful identification information regarding the chip that is readable for accuracy and convenience. Additionally, the Examiner notes that the prior art teaches the claimed structure, and that the printed indicia thereon would be a matter of intended use. Since the printed indicia is not functionally related to the substrate (In re Gulack and In re Ngai) the

difference between the prior art and the claims is merely in the information set forth in the printed indicia/barcode, and as such is not patentably distinct. Re claim 34, it has been discussed above that the mark is visible through the encapsulating structure. Re claim 37, the limitations have been discussed above. Re claims 38-41 and 43, the limitations have been discussed above. The Examiner has already discussed that replacing the code of Hiromasa with a laser readable code (barcode for example) would have been an obvious expedient to provide a machine-readable code, which provides the benefits of accuracy and convenience. Re claim 43, the teachings of flip chip bonding, and its benefits have been discussed above. One would have been motivated to use the pads for the benefits as discussed above. Re claims 44-48, the limitations have been discussed above. Re claim 49, the Examiner notes that Hiromasa et al. teaches a silver ink (colored).

6. Claims 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aurenus, as discussed above.

The teachings of Aurenus have been discussed above.

Aurenus is silent to the laser readable mark comprising a manufacturer identity.

However, the Examiner notes that it is well known and conventional to provide manufacturer identity in the form of a barcode, to provide additional item information. Additionally, the Examiner notes that the prior art teaches the claimed structure, and that the printed indicia thereon would be a matter of intended use. Since the printed indicia is not functionally related to the substrate (In re Gulack and In re Ngai) the difference between the prior art and the claims is merely in the information set forth in the printed indicia/barcode, and as such is not patentably distinct. Re claims 43 Aurenus is silent to another surface with

multiple pads. The Examiner notes that the use of pads on a chip for flip chip bonding, and its benefits has been discussed above. One would have been motivated to use the pads for the benefits as discussed above.

7. Claims 40, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamagishi, as discussed above.

The teachings of Hamagishi have been discussed above.

Hamagishi is silent to the laser readable mark comprising a product of manufacturer identity, and that the surface of the chip has multiple pads.

The examiner notes that providing identification information of a product/manufacture is well known and conventional for providing item information. Additionally, the Examiner notes that the prior art teaches the claimed structure, and that the printed indicia thereon would be a matter of intended use. Since the printed indicia is not functionally related to the substrate (In re Gulack and In re Ngai) the difference between the prior art and the claims is merely in the information set forth in the printed indicia/barcode, and as such is not patentably distinct. Re claim 42, the Examiner notes that (FIG. 2) shows multiple pads on the surface.

8. Claim 42 and 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiromasa et al., as discussed above, in view of Hikita et al. (US 6,476,499).

The teachings of Hiromasa et al. have been discussed above. Hiromasa et al. teaches a surface with a mark provided under a protective layer. Though silent to a machine readable/laser readable mark, the Examiner notes it would have been obvious to make the mark a barcode in order to provide a well-known and conventional means of accurately and reliably reading identification information. It has additionally been discussed above that flip chip mounting

techniques are well know and provide predicted benefits over wire connections, and that typical flip chip mounting techniques have multiple pads.

Hiromasa et al. is silent to the surface with the mark having multiple pads.

Hikita teaches that pads can be formed on the main surface of the chip, for connectivity with another (stacked) chip (FIG. 5).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to combine the teachings of with those of Hikita et al.

One would have been motivated to do this in order to permit chips to be stacked.

9. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiromasa et al., as discussed above.

The teachings of Hiromasa et al. have been discussed above.

Hiromasa et al. is silent to a surface of the semiconductor chip having multiple pads.

The Examiner notes that multiple pads have been discussed above, in addition to the benefits of such an attachment structure (without wire bonds). One would have been motivated to use multiple pads to achieve the results as discussed above.

### ***Conclusion***

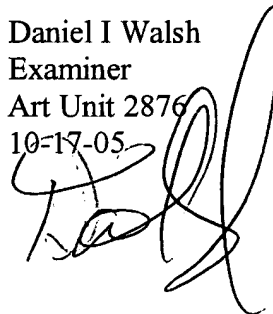
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel I. Walsh whose telephone number is (571) 272-2409. The examiner can normally be reached on M-F 7:30-4:00.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel I Walsh  
Examiner  
Art Unit 2876  
10-17-05

A handwritten signature in black ink, appearing to be 'D. Walsh', written over the printed name and date.